

The Great Grid Upgrade

Sea Link

Sea Link

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8. Air Quality

8.1 Introduction

- 8.1.1 This chapter of the Environmental Statement (ES) presents information about the environmental assessment of the likely significant air quality effects that could result from the Proposed Project (as described in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**) specifically the Kent Onshore Scheme.
- 8.1.2 The construction and decommissioning phases of the Proposed Project have the potential to result in temporary air quality impacts due to construction vehicle, dust, and Non-Road Mobile Machinery (NRMM) emissions. The operation and maintenance phase of the Proposed Project may also affect air quality due to vehicle emissions and emissions from the substation and converter station back-up generators.
- 8.1.3 This chapter describes the regulatory and planning policy framework, the methodology used, the datasets that have informed the assessment, baseline conditions, committed mitigation, and the residual significant air quality effects that could result from the Proposed Project.
- 8.1.4 The Order Limits, which illustrate the boundary of the Proposed Project, are illustrated on **Application Document 2.2.1 Overall Location Plan** and the Kent Onshore Scheme Boundary is illustrated on **Application Document 2.2.3 Kent Location Plan**.
- 8.1.5 This chapter should be read in conjunction with:
- **Application Document 6.2.1.3 Part 1 Introduction Chapter 3 Main Alternatives Considered;**
 - **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project;**
 - **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology;**
 - **Application Document 6.2.1.6 Part 1 Introduction Chapter 6 Scoping Opinion and EIA Consultation;**
 - **Application Document 6.2.3.2 Part 3 Kent Chapter 2 Ecology and Biodiversity;**
 - **Application Document 6.2.3.7 Part 3 Kent Chapter 7 Traffic and Transport;**
 - **Application Document 6.2.3.11 Part 3 Kent Chapter 11 Health and Wellbeing;**
 - **Application Document 6.2.3.12 Part 3 Kent Chapter 12 Kent Onshore Scheme Intra-Project Cumulative Effects;** and
 - **Application Document 6.2.3.13 Part 3 Kent Chapter 13 Kent Onshore Scheme Inter-Project Cumulative Effects.**
- 8.1.6 This chapter is supported by the following figures:
- **Application Document 6.4.3.8 Air Quality;**

- **Application Document 6.4.3.7.2 Heavy Goods Vehicle (HGV) Routing Plan;** and
- **Application Document 2.14.2 Indicative General Arrangement Plans – Kent.**

8.1.7 This chapter is supported by the following appendices:

- **Application Document 6.3.3.8.A Appendix 3.8.A Construction Dust Assessment and Methodology;**
- **Application Document 6.3.3.8.B Appendix 3.8.B Air Quality Modelling Methodology;**
- **Application Document 6.3.3.8.C Appendix 3.8.C Air Quality Monitoring Data;** and
- **Application Document 6.3.1.4.B Appendix 1.4.B Construction Plant Schedule.**

8.1.8 This chapter is supported by the following application documents:

- **Application Document 7.5.3 Outline Onshore Construction Environmental Management Plan (CEMP);**
- **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice;**
- **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC);**
- **Application Document 7.5.1.2 Outline Construction Traffic Management and Travel Plan (Kent);** and
- **Application Document 7.5.6.2 Outline Air Quality Management Plan - Kent.**

8.2 Regulatory and Planning Context

8.2.1 This section sets out the legislation and planning policy that is relevant to the air quality effects assessment. A full review of compliance with relevant national and local planning policy is provided within the **Application Document 7.1 Planning Statement** submitted as part of the application for Development Consent.

8.2.2 Policy generally seeks to minimise air quality effects from development and to avoid significant adverse effects. This applies particularly to traffic emissions associated with the Proposed Project and the impact of this on human health and ecology. This also applies to the dust and NRMM emissions during the construction of the Proposed Project.

Legislation

8.2.3 A summary of the international, national and local legislation, planning policy and guidance relevant to the air quality assessment for the Proposed Project is set out below.

Directive 2008/50/EC on ambient air quality and cleaner air in Europe

8.2.4 Prior to the UK's withdrawal from the European Union (EU), the EU Directive on ambient air quality (2008/50/EC) (The European Parliament and the Council of the European Union, 2008) set out a range of mandatory Limit Values (LVs) for different

pollutants including nitrogen dioxide (NO₂) and particulate matter less than 10 microns in diameter (PM₁₀), the key traffic related pollutants. The directive set LVs or Target Values for the concentrations of specific air pollutants and provided a new regulatory framework for particulate matter less than 2.5 microns in diameter (PM_{2.5}). The Air Quality (Standards) Regulations 2010 (HM Government, 2010) transposed into English law the requirements of Directive 2008/50/EC (The European Parliament and the Council of the European Union, 2008) on ambient air quality.

- 8.2.5 Pursuant to the EU (Withdrawal) Act 2018 (HM Government, 2018), law derived from the EU has been converted into domestic law following the UK's withdrawal from the EU. The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (HM Government, 2019) made amendments to the Air Quality Standards Regulations 2010 (HM Government, 2010) to transpose provisions of the EU Ambient Air Quality Directive (2008/50/EC) (The European Parliament and the Council of the European Union, 2008) into UK law.
- 8.2.6 The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 (HM Government, 2020) amended the PM_{2.5} LV from 25 µg/m³ (within the Air Quality Standards Regulations 2010) to 20 µg/m³ in line with the requirement of the EU Directive (2008/50/EC) (The European Parliament and the Council of the European Union, 2008) during the transition of the UK's withdrawal from the European Union.

Air Quality (England) Regulations 2000

- 8.2.7 The ambient air quality standards and objectives are given statutory backing in England through the Air Quality (England) Regulations 2000 (HM Government, 2000) and the Air Quality (England) (Amendment) Regulations 2002 (HM Government, 2002). The LVs were given statutory backing through the Air Quality Standards Regulations 2010 (HM Government, 2010). The Air Quality Strategy (AQS) objectives for the protection of human health and applicable to this assessment are presented in Table 8.1.

Table 8.1 Air quality objectives

Pollutant	Air Quality Period	
	Concentration (µg/m ³)	Averaging Period
NO ₂	40	Annual mean
	200	1-hour mean; not to be exceeded more than 18 times a year
PM ₁₀	40	Annual mean
	50	24-hour mean; not to be exceeded more than 35 times a year
PM _{2.5}	25* (LV is 20)	Annual mean

* It should be noted that PM_{2.5} was included in the air quality strategy 2007 but not in the regulations as a legal requirement to be achieved by local authorities. The LV is 20 µg/m³ - this has been used in the assessment as it is lower.

- 8.2.8 Reporting against compliance with LVs is undertaken by the Department for Environment, Food & Rural Affairs (Defra) and reported at a zonal/agglomeration level. Zones/agglomerations only comply when everywhere in the zone is below the LV and

this is the basis of Defra’s reporting, which is designed to determine what the maximum concentration is within the zone and hence determine the date the zone will comply with the LV. AQS objectives are assessed at a much more local level where an Air Quality Management Area (AQMA) can be designated as a result of exceedance at individual properties.

- 8.2.9

The Air Quality Objectives only apply where members of the public are likely to be regularly present for the averaging time of the objective (i.e., where people will be exposed to pollutants). As detailed in LAQM.TG(22) (Department for Environment, Food and Rural Affairs, 2022), the annual mean objectives apply to all locations where members of the public might be regularly exposed; these include building façades of residential properties, schools, hospitals, and care homes. The 24-hour mean objective applies to all locations where the annual mean objective would apply, together with hotels and gardens of residential properties. The one hour mean objective also applies at these locations as well as at any outdoor location where a member of the public might reasonably be expected to stay for one hour or more, such as shopping streets, parks, and sports grounds, as well as at bus stations and railway stations that are not fully enclosed.
- 8.2.10

The AQS Critical Levels for the protection of vegetation and ecosystems applicable to this assessment are presented in Table 8.2.

Table 8.2 Air quality Critical Levels for the protection of vegetation and ecosystems

Pollutant	Critical Level	
	Concentration	Averaging Period
Oxides of nitrogen (NOx)	30 µg/m ³	Annual mean
Ammonia (NH ₃)	1µg/m ³ (where lichens or bryophytes present, 3 µg/m ³ elsewhere)*	Annual mean

* Annual mean NH₃ Critical Levels are non-legal thresholds derived from EA guidance (Environment Agency and the Department for Environment, 2025)

- 8.2.11

It should be noted that, in addition to the Critical Levels, there are also critical loads. Nitrogen (N) deposition to terrestrial and freshwater ecosystems can lead to acidification or eutrophication. Critical loads have therefore been developed to protect against these adverse effects. Critical loads are given as ranges of N Deposition (e.g. 10-20 kg N/ha/yr) and vary dependent on the sensitivity of the ecosystem type. N deposition can be affected by a project where there are changes in emissions that affect concentrations of NO₂ and NH₃ (such as increases in vehicle emissions). Where there are changes in these pollutants as a result of the project, impacts on the specific critical load would be considered.
- 8.2.12

Local authorities have no legal requirement to comply with AQS objectives. They are, however, required to demonstrate best efforts to work towards achieving AQS objectives and a framework has been developed (Department for Environment, Food and Rural Affairs, 2023) to enable local authorities to deliver and contribute to long-term air quality goals.

The Environment Act (1995)

- 8.2.13 Part IV of the Environment Act 1995 (HM Government, 1995) required the UK Government to produce a national AQS which contains standards, objectives and measures for improving ambient air quality. The AQS (Department for Environment, Food and Rural Affairs, 2023) sets out objectives that are maximum ambient concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale.
- 8.2.14 It is a requirement of the Environment Act (1995) (HM Government, 1995) that local authorities review current and future air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). Where a local authority's review and assessment of local air quality indicates that AQS objectives are not expected to be achieved, local authorities are required to designate an AQMA. An Air Quality Action Plan (AQAP) must then be formulated, outlining a plan of action to meet AQS objectives in the AQMA.

The Environment Act (2021)

- 8.2.15 The Environment Act 2021 (HM Government, 2021) has two main functions:
- To give a legal framework for environmental governance in the UK; and
 - To bring in measures for the improvement of the environment in relation to waste, resource efficiency, air quality, water, nature and biodiversity, and conservation.
- 8.2.16 The majority of the Act does not make any immediate changes for organisations other than regulators. Legislative requirements relevant to air quality include the requirement for the Secretary of State to set targets for PM_{2.5}. The Environmental Targets (Fine Particulate Matter) England Regulations 2023 (HM Government, 2023) set out the following targets for PM_{2.5}:
- Annual Mean Concentration Target ('concentration target') – a target of 10 µg/m³ to be met across England by 2040; and
 - Population Exposure Reduction Target ('exposure reduction target') – a 35% reduction in population exposure by 2040 (compared to a base year of 2018).
- 8.2.17 Defra is in the process of producing planning guidance on how developers and local planning authorities should take the targets into consideration in the planning process. The interim guidance (Department for Environment, Food and Rural Affairs, 2024) was published in October 2024 and advises applicants to provide evidence in their planning applications that they have identified key sources of air pollution within their schemes and taken appropriate action to minimise emissions of PM_{2.5} as far as is reasonably practicable.

Environmental Protection Act 1990

- 8.2.18 Activities that generate dust of a sufficient scale and frequency, may become a statutory nuisance. The relevant legislation dealing with statutory nuisance is given in Part III of the Environmental Protection Act 1990 (HM Government, 1990). A statutory nuisance in relation to dust and deposits is defined under Section 79 of the act as follows:

“(d) Any dust, steam, smell or other effluvia arising on industrial, trade, or business premises and being prejudicial to health or a nuisance.

(e) any accumulation or deposit which is prejudicial to health or a nuisance.”

- 8.2.19 Under the provisions of the Act, where a local authority is satisfied that a Statutory Nuisance exists, it is under a mandatory duty to serve an Abatement Notice requiring abatement or cessation of one or more activities deemed to be causing the nuisance. In the absence of any kind of standard, identification of a nuisance is dependent on the professional judgment of the local authority as to whether Best Practical Means (BPM) are being employed to control emissions. Where BPM is evident or can be clearly demonstrated then a particular activity cannot be deemed to be causing a Statutory Nuisance.

The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018

- 8.2.20 The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 (HM Government, 2018) set out gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for NRMM.

National Policy

National Policy Statements

- 8.2.21 National Policy Statements (NPS) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Proposed Project will be considered. Table 8.3 below provides details of the elements of NPS for Energy (EN-1) (Department for Energy Security & Net Zero, 2023) that are relevant to this chapter. There are no elements of NPS for Electricity Networks Infrastructure (EN-5) (Department for Energy Security & Net Zero, 2023) that are relevant to air quality. NPS EN-3 Renewable Energy Infrastructure has relevance to the Proposed Project, but only in respect of the offshore elements. As such it has no relevance to the assessment presented in this chapter.

Table 8.3 NPS EN-1 requirements relevant to air quality

NPS EN-1 section	Where this is covered in the ES
5.2.1 [Part] <i>“Energy infrastructure development can have adverse effects on air quality. The construction, operation and decommissioning phases can involve emissions to air which could lead to adverse impacts on health, on protected species and habitats, or on the wider countryside and species.”</i>	The ES has considered all phases of the Proposed Project (construction, operation/maintenance, and decommissioning) in terms of emissions to air on both human and ecological receptors. Assessment of these effects is detailed in Section 8.9 of this chapter.
5.2.3 <i>“For many air pollutants there is not a threshold below which there is no health impact so it is important that energy infrastructure schemes consider not just how a scheme may impact statutory air quality limits, objectives or targets but also measures to mitigate all emissions in order to minimise human exposure to air pollution,</i>	Mitigation measures have been proposed to limit human exposure to air pollution, as summarised in Section 8.8 of this chapter.

NPS EN-1 section	Where this is covered in the ES
<i>especially for those who are more susceptible to the impacts of poor air quality.”</i>	
5.2.4 [Part] <i>“A particular effect of air emissions from some energy infrastructure may be eutrophication, which is the excessive enrichment of nutrients in the environment. Eutrophication from air pollution results mainly from emissions of NOx and ammonia.”</i>	The assessment of air quality has considered air emissions from the Proposed Project and their effect on ecological receptors, as detailed in Section 8.9 of this chapter. Residual effects on ecological receptors have been determined as not significant. As such, eutrophication as a result of the Proposed Project would not be significant and has not been considered further in the assessment as detailed in Section 8.9.
5.2.5 [Part] <i>“Emissions from combustion plants are generally released through exhaust stacks. Design of exhaust stacks, particularly height, is the primary driver for the delivery of optimal dispersion of emissions and is often determined by statutory requirements. The optimal stack height is dependent upon the local terrain and meteorological conditions, in combination with the emission characteristics of the plant.”</i>	The assessment of air quality has considered air emissions from the Proposed Project, including emissions from back up generators and NRMM, as detailed in Section 8.9 of this chapter.
5.2.8 <i>“Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the Environmental Statement (ES).”</i>	An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality. The results of this assessment are presented in Section 8.9.
5.2.9 <i>“The ES should describe:</i> <ul style="list-style-type: none"> <i>- existing air quality levels and the relative change in air quality from existing levels;</i> <i>- any significant air quality effects, mitigation action taken and any residual effects, distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project;</i> <i>- the predicted absolute emissions, concentration change and absolute concentration change and absolute concentrations as a result of the proposed project, after mitigation methods have been applied; and</i> <i>- any potential eutrophication impacts.”</i> 	Baseline air quality conditions have been considered in Section 8.7. Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10. An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality for each phase of the Proposed Project which is presented in Section 8.9. This has included the prediction of concentrations with and without the Proposed Project, and the change in concentrations as a result of the Proposed Project. Residual effects on ecological receptors have been determined as not significant. As such, eutrophication as a result of the Proposed Project would not be significant

NPS EN-1 section	Where this is covered in the ES
	and has not been considered further in the assessment.
5.2.10 <i>“Applicants should consider the Environment Targets (Fine Particulate Matter) (England) Regulations 2022 and associated Defra guidance.”</i>	All the relevant legislation and guidance has been considered as outlined in Section 8.2 and Section 8.4, respectively.
5.2.11 <i>“Defra publishes future national projections of air quality based on estimates of future levels of emissions, traffic, and vehicle fleet. Projections are updated as the evidence base changes and the applicant should ensure these are current at the point of an application. The applicant’s assessment should be consistent with this but may include more detailed modelling and evaluation to demonstrate local and national impacts. If an applicant believes they have robust additional supporting evidence, to the extent they could affect the conclusions of the assessment, they should include this in their representations to the Examining Authority along with the source”</i>	Current and future Defra air quality background concentrations, as well as local air quality monitoring, have been used in the assessment of air quality effects to determine where the Proposed Project is likely to have adverse impacts on air quality. The background concentrations are reported in Section 8.7. Detailed modelling of emissions has been undertaken, as detailed in Section 8.9 of this chapter.
5.2.12 <i>“Where a proposed development is likely to lead to a breach of any relevant statutory air quality limits, objectives or targets, or affect the ability of a noncompliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan/strategy at the time of the decision, the applicant should work with the relevant authorities to secure appropriate mitigation measures to ensure that those statutory limits, objectives or targets are not breached.”</i>	The assessment of air quality has considered whether the Proposed Project is likely to lead to a breach of the air quality thresholds or affect the ability of a non-compliant area to achieve compliance, as detailed in Section 8.9 of this chapter. Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10 of this chapter.
5.2.13 <i>“The Secretary of State should consider whether mitigation measures are needed both for operational and construction emissions over and above any which may form part of the project application. A construction management plan may help codify mitigation at this stage. In doing so the Secretary of State should have regard to the Air Quality Strategy in England, or the Clean Air Plan for Wales in Wales, or any successors to these and should consider relevant advice within Local Air Quality Management guidance and PM_{2.5} targets guidance.”</i>	Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10. An air quality management plan has been compiled, as presented in Application Document 7.5.6.2 Outline Air Quality Management Plan – Kent and measures have been incorporated into Application Document 7.5.3.1 Outline Code of Construction Practice and Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC) .
5.2.16 <i>“The Secretary of State should give air quality considerations substantial weight where a project would lead to a deterioration in air quality. This could for example, include where an area breaches any national air quality limits or statutory</i>	An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality including whether there would be a breach of

NPS EN-1 section	Where this is covered in the ES
<i>air quality objectives. However, air quality considerations will also be important where substantial changes in air quality levels are expected, even if this does not lead to any breaches of statutory limits, objectives or targets.”</i>	statutory limits, objectives, or targets; this is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10 of this chapter.
<i>5.7.5 “The applicant should assess the potential for insect infestation and emissions of odour, dust, steam, smoke, and artificial light to have a detrimental impact on amenity, as part of the ES”.</i>	An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10 of this chapter. A summary of all potential sources of statutory nuisance, including those relating to air quality, is provided in Application Document 6.7 Statement of Statutory Nuisance .

National Planning Policy Framework

- 8.2.22 The National Planning Policy Framework (NPPF) as revised in December 2024 (Ministry of Housing Communities and Local Government, 2024) sets out national planning policies that reflect priorities of the Government for operation of the planning system and the economic, social, and environmental aspects of the development and use of land. The NPPF has a strong emphasis on sustainable development, with a presumption in favour of such development. The NPPF has the potential to be considered important and relevant to the Secretary of State’s (SoS) consideration of the Proposed Project.
- 8.2.23 Table 8.4 below provides details of the elements of the NPPF that are relevant to this chapter, and how and where they are covered in the ES.

Table 8.4 NPPF requirements relevant to air quality

NPPF section	Where this is covered in the ES
<p>Paragraph 187</p> <p><i>“Planning policies and decisions should contribute to and enhance the natural and local environment by:</i></p> <p><i>...preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account</i></p>	<p>An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 of this chapter.</p>

NPPF section	Where this is covered in the ES
<p><i>relevant information such as river basin management plans.”</i></p> <p>Paragraph 199</p> <p><i>“Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.”</i></p>	<p>Mitigation measures have been proposed where required and are summarised in Section 8.8. An air quality management plan has been compiled, as presented in Application Document 7.5.6.2 Outline Air Quality Management Plan – Kent and measures have been incorporated into Application Document 7.5.3.1 Outline Code of Construction Practice and Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC).</p>

National Planning Practice Guidance

- 8.2.24 The National Planning Practice Guidance (NPPG) (Ministry of Housing, Communities and Local Government, 2019) includes guidance relating to: planning and air quality; the role of Local Plans with regard to air quality; when air quality is likely to be relevant to a planning decision; what should be included within an air quality assessment and how impacts on air quality can be mitigated. The assessment follows the guidance which contains recommendations when undertaking an air quality assessment for the purpose of applying NPPF policy.

Local Planning Policy

- 8.2.25 The Kent Onshore Scheme (refer to **Application Document 2.2.3 Kent Location Plan**) lies within the jurisdiction of Kent County Council. Planning guidance which is relevant to a study of air quality and has informed the assessment of effects in this chapter are as follows.

Kent County Council Framing Kent’s Future – Our Council Strategy 2022 to 2026

- 8.2.26 The Kent County Council Framing Kent’s Future - Our Council Strategy for 2022 to 2026 (Kent County Council, 2022) includes four key priorities, one of which is Environmental Step Change. This includes the commitment “*to consider Kent’s environment as a core asset that is valued, strengthened and protected*”, which includes creating improved air quality action plans.

Kent Environment Strategy

- 8.2.27 Kent Environment Strategy (Kent County Council, 2016) was published by KCC in 2016. The document sets out the vision for Kent across three themes: 1) building the foundations for delivery, 2) making best use of existing resources, avoiding or minimising negative impacts, and 3) toward a sustainable future. Under theme three: toward a sustainable future, the document sets out a number of targets including to “*decrease the number of days of moderate or higher air pollution and the concentration of pollutants.*”.

Kent and Medway Energy and Low Emissions Strategy

- 8.2.28 Kent and Medway Energy and Low Emissions Strategy (Kent County Council and Medway Council, 2020) sets out how Medway Council and the Kent district Councils will respond to the UK climate emergency and drive clean, resilient economic recovery across the county. Its purpose is to “*reduce greenhouse gas emissions, eliminate poor air quality, reduce fuel poverty, and promote the development of an affordable, clean and secure energy supply.*”.

Local Plans

- 8.2.29 The majority of the Kent Onshore Scheme lies within the jurisdiction of Thanet District Council (TDC). Local planning policy for TDC consists of the Thanet Local Plan (adopted July 2020) (Thanet District Council, 2020). Thanet Local Plan policies which are relevant to air quality assessment matters and have informed the Air Quality assessment are detailed in Table 8.5.

Table 8.5 Local planning policies relevant to air quality – Thanet District Council Local Plan

Thanet Local Plan - Policy	Where this is covered in the ES
Policy SE05 – Air Quality <i>“... New development must ensure that users are not significantly adversely affected by the air quality and include mitigation measures where appropriate...”</i>	An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10 of this chapter.
Policy SE05 – Air Quality <i>“...All developments which either individually or cumulatively are likely to have a detrimental impact on air quality will be required to submit an Air Quality and/or Emissions Mitigation Assessment in line with the Air Quality Technical Planning Guidance 2016”</i>	An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9. Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10. The Air Quality Technical Planning Guidance 2016 has been considered in the assessment (Thanet District Council, 2016).

Thanet Local Plan - Policy	Where this is covered in the ES
Policy SE05 – Air Quality <i>“The Air Quality Assessment should address the cumulative effect of further emissions.”</i>	An assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9. Intra and inter project cumulative effects have been considered and are reported in Application Document 6.2.3.12 Part 3 Kent Chapter 12 Kent Onshore Scheme Intra-Project Cumulative Effects and Application Document 6.2.3.13 Part 3 Kent Chapter 13 Kent Onshore Scheme Inter-Project Cumulative Effects , respectively.
Policy SE05 – Air Quality <i>“The Emission Mitigation Assessment should address any proposed mitigation measures through good design and offsetting... These will be of particular importance within the urban Air Quality Management Area (AQMA)...”</i>	Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10. An air quality management plan has been compiled, as presented in Application Document 7.5.6.2 Outline Air Quality Management Plan – Kent and measures have been incorporated into Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice and Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC) .

- 8.2.30 TDC has issued an Air Quality Technical Planning Guidance document (Thanet District Council, 2016). The aim of the document is to *“provide developers with clear information as to what it will require and consistency in how it will approach planning applications in terms of air quality.”* The requirements of this have been considered throughout this assessment.
- 8.2.31 Parts of the Kent Onshore Scheme lie within the jurisdiction of Dover District Council (DDC). DDC adopted the latest Local Plan in October 2024 (Dover District Council, 2024). Local Plan policies that are relevant to air quality matters are identified in Table 8.6 below.

Table 8.6 Local Planning Policies relevant to air quality – Dover District Local Plan to 2040

Dover District Local Plan to 2040	Where this is covered in the ES
NE4 Air Quality <i>“Development proposals that might lead to a significant deterioration in air quality or national air quality objectives being exceeded, either alone, or in combination with other committed development, will be required to submit an Air Quality</i>	An assessment of air quality effects has been undertaken in accordance with the relevant guidance to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 8.9.

Assessment, carried out in accordance with the relevant guidance and utilising the DEFRA Emissions Factor Toolkit, to be agreed with the Local Planning Authority as part of planning applications. Such an Assessment should address:

A - The cumulative effect of further emissions arising from the proposals; and, B - The proposed mitigation measures, including appropriate design and offsetting measures, which would prevent National Air Quality Objectives being exceeded or would reduce the extent of any air quality deterioration.

Major development proposals will be required to demonstrate a shift to the use of sustainable low emission transport, in accordance with Policy TI 1, in order to minimise the impact of vehicle emissions on air quality and how such a modal shift will be achieved.

Proposals which will result in National Air Quality Objectives being exceeded will not be permitted.”

Intra and inter-project cumulative effects have been considered and are reported in **Application Document 6.2.3.12 Part 3 Kent Chapter 12 Kent Onshore Scheme Intra-Project Cumulative Effects** and **Application Document 6.2.3.13 Part 3 Kent Chapter 13 Kent Onshore Scheme Inter-Project Cumulative Effects**, respectively.

Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10.

- 8.2.32 DDC has produced an AQAP as part of their statutory duties required by the Local Air Quality Management framework (Dover District Council, 2024). It outlines the actions DDC will take to improve air quality in DDC between 2024 and 2028, with a particular focus on the AQMAs. The measures are categorised into the following areas:
- Transport – Provision of additional transport infrastructure; changes to road layout or operation; formulation of traffic plans with the aim being to encourage the use of greener modes of transport, and/or reduce congestion and associated vehicle emissions;
 - Behavioural Change – Encouragement of wider behavioural changes in local population with respect to their travel choices, raise awareness and educate members of the public on the impact of air pollution;
 - Strategies and Policy Guidance – Working with partners and stakeholders to direct the use of legislation and targeted enforcement to control air pollution;
 - Planning and Infrastructure – Mitigate potential air quality impacts effectively by being involved in decision making early on for future developments required to support the growth of DDC; and
 - Air Quality Monitoring (Evidence for Improvement) – Ensure satisfactory air quality monitoring data is available to track outcomes of the implemented AQAP measures.
- 8.2.33 These have been considered in the assessment, particularly in relation to mitigation measures which have been proposed where required and are summarised in Section 8.8 and 8.10.

8.3 Scoping Opinion and Consultation

Scoping

- 8.3.1 A Scoping Report for the Proposed Project was issued to the Planning Inspectorate (PINS) on 24 October 2022 **Application Document 6.14 Environmental Scoping Report 2022** and a Scoping Opinion was received from PINS on behalf of the SoS on 1 December 2022 (**Application Document 6.15 Scoping Opinion 2022**). Table 8.7 sets out the comments raised in the Scoping Opinion and how these have been addressed in this ES. The Scoping Opinion takes account of responses from prescribed consultees as appropriate. **Application Document 6.3.1.6.A Appendix 1.6.A Responses to Scoping Opinion** provides responses to the comments made by the prescribed consultees at the scoping stage and how each comment has been considered.

Table 8.7 Comments raised in the Scoping Opinion

ID	Inspectorate's comments	Response
4.8.1	<p><i>Air quality impacts from an increase in vehicle emissions -construction, operation maintenance, and decommissioning</i></p> <p>The Scoping Report proposes to scope out these matters on the basis that it is not considered that construction, operational, maintenance and decommissioning traffic flows associated with the Proposed Development would exceed the Institute of Air Quality Management (IAQM) criteria for a detailed air quality assessment. The Inspectorate would expect the ES to provide a detailed explanation of the likely traffic flows during all phases of the Proposed Development to justify not undertaking further assessment. Cross reference should be made to the assessments of effects on Ecology and Biodiversity and on Human Health.</p>	<p>Traffic flows have been compared with the IAQM and Environmental Protection UK (EPUK) Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) and are summarised in Section 8.9. Further details of traffic data are provided in Application Document 6.2.3.7 Part 3 Kent Chapter 7 Traffic and Transport. Traffic flows exceed the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017), therefore further assessment of vehicle emissions has been undertaken for the construction phase.</p> <p>Reference has been made in Section 8.1 to the Ecology and Biodiversity Chapter and Health and Wellbeing Chapter (Application Document 6.2.3.2 Part 3 Kent Chapter 2 Ecology and Biodiversity and Application Document 6.2.3.11 Part 3 Kent Chapter 11 Health and Wellbeing, respectively).</p>

ID	Inspectorate's comments	Response
4.8.2	<p><i>Emissions from NRMM - construction and decommissioning</i></p> <p>The Scoping Report proposes to scope out this matter on the basis that emissions would not be significant due to the temporary and transient nature of construction activity and incorporation of best practice measures included within the Code of Construction Practice (CoCP).</p> <p>Whilst the Inspectorate considers that emissions from NRMM are unlikely to be significant in most cases, in the absence of detail regarding the location of construction works with respect to receptors and the type and duration of NRMM to be deployed, the Inspectorate does not consider that this matter may be scoped out based on current evidence. The ES should include an assessment of emissions from NRMM on sensitive receptors where significant effects are likely.</p>	<p>NRMM emissions have been considered in Section 8.9.</p> <p>Mitigation measures have been proposed where required and are summarised in Section 8.8 and 8.10 of this chapter.</p>

Statutory Consultation

- 8.3.2 Statutory Consultation for the Proposed Project took place between 24 October and 18 December 2023. A further Targeted Consultation exercise on the main changes to the Proposed Project introduced after the 2023 statutory consultation, was undertaken between 8 July and 11 August 2024. In addition, a project update and a local engagement exercise took place between 22 November 2024 and 12 January 2025, focusing on design amendments made following Targeted Consultation. A summary of relevant feedback received during consultation relating to air quality is provided below. Further details on how consultation responses have informed the assessment can be found in **Application Document 5.1 Consultation Report** and **Application Document 5.1.9 Appendix H Summary 2023 Response**.
- 8.3.3 Feedback relating to air quality was received from a number of prescribed consultees. The feedback most relevant to the assessment is as follows:
- DDC raised concerns about construction traffic and its effects on nearby residences. Construction traffic emissions and the potential impact on human and ecological receptors are considered in Section 8.9.
 - TDC requested that ecological receptors were considered in the assessment, as well as human receptors. The impact of the Proposed Project on both human and ecological receptors are considered in Section 8.9.
 - TDC requested that the assessment is undertaken in accordance with the latest guidance. The latest guidance has been used in the assessment as outlined in Section 8.4.

- TDC requested that real time air quality sensors are installed should the construction traffic route on Jutes Lane be selected. Whilst the main construction traffic route will not be via Jutes Lane, a very small proportion of construction traffic (circa 1% in total, and less than 1% HGVs) will use Jutes Lane to access the Proposed Project. As such real time air quality sensors are proposed at this location, as presented in **Application Document 7.5.6.2 Outline Air Quality Management Plan – Kent** and measures have been incorporated into **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice** and **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**.

Further Engagement

- 8.3.4 Three air quality thematic meetings have taken place with KCC, TDC, and DDC following statutory consultation, as part of further stakeholder engagement specific to this ES chapter. A thematic meeting has also taken place with Natural England. A summary of the topics covered is set out below.
- 8.3.5 In February 2024, a meeting was held with KCC, TDC, and DDC to cover a project update, statutory consultation feedback, and the assessment methodology. Further discussion regarding receptor locations and monitoring locations was requested by KCC, TDC and DDC once the assessment was underway. A separate meeting was held with NE in February 2024, covering the same matters.
- 8.3.6 In July 2024, a meeting was held with KCC, TDC, and DDC to review the proposed design changes to the Kent Onshore Scheme as part of the targeted consultation between 8 July and 11 August 2024, including the potential implications to the air quality assessment. The proposed air quality monitoring during the construction phase was also discussed.
- 8.3.7 In January 2025, a meeting was held with KCC, TDC, and DDC to provide a project update, to discuss the assessment findings, and to agree the air quality monitoring locations proposed for the construction phase.

Summary of Scope of Assessment

- 8.3.8 This section details what aspects have been scoped in and scoped out of the assessment through the scoping process and consultation with stakeholders.

Aspects scoped into the assessment

- 8.3.9 The assessment considers temporary air quality impacts due to construction vehicle, dust, and NRMM emissions during the construction and decommissioning phases of the Proposed Project. It also considers the operation and maintenance phase of the Proposed Project, which may affect air quality due to vehicle emissions and emissions from the substation and converter station's back-up generators.

Aspects scoped out of the assessment

- 8.3.10 Gas Insulated Switchgear (GIS) is proposed at the substation. GIS can use the gas sulphur hexafluoride as an electrical insulator, which is a potent greenhouse gas, but which is not considered to be a local air quality pollutant. In addition, manufacturers now produce GIS switchgear that have no or minimal leakage and National Grid avoid the

use of sulphur hexafluoride in GIS where possible. This gas is therefore not considered further in this assessment.

8.4 Approach and Methodology

- 8.4.1 **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology** sets out the overarching approach which has been used in developing the environmental assessment. This section describes the technical methods used to determine the baseline conditions, sensitivity of the receptors, and magnitude of effects and sets out the significance criteria that have been used for the air quality assessment.

Guidance Specific to the Air Quality Assessment

- 8.4.2 The air quality assessment has been carried out in general accordance with the following good practice guidance documents:
- IAQM: Guidance on the Assessment of Dust from Demolition and Construction (Institute of Air Quality Management, 2024) (hereafter referred to as IAQM Construction Dust guidance). This guidance was updated in January 2024 and the construction dust study area and assessment methodology have been updated since the Preliminary Environmental Information Report (PEIR);
 - IAQM and EPUK: Land Use Planning and Development Control: Planning for Air Quality guidance (Institute of Air Quality Management and Environmental Protection UK, 2017) (hereafter referred to as IAQM and EPUK Development Control guidance);
 - IAQM: A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Institute of Air Quality Management, 2020);
 - Defra: Local Air Quality Management Technical Guidance (LAQM.TG(22)) (Department for Environment, Food and Rural Affairs, 2022); and
 - National Highways: Design Manual for Roads and Bridges (DMRB) LA105 (National Highways (formerly Highways England), 2024).
- 8.4.3 In addition, TDC's Air Quality Technical Planning Guidance document (Thanet District Council, 2016) has also been considered in the assessment.

Baseline Data Gathering and Forecasting Methods

- 8.4.4 Baseline information on air quality has been collected from the following sources:
- Defra UK AIR website (Department for Environment, Food and Rural Affairs, 2024) – to establish predicted background concentrations for NO₂, PM₁₀ and PM_{2.5} for the base year and future years, and to determine existing AQMAs;
 - Local authority websites and annual Air Quality Status Reports – to determine existing AQMAs and local air quality monitoring results:
 - Dover District Council Annual Status Report (ASR) 2024 (Dover District Council, 2024);
 - Thanet District Council ASR 2024 (Thanet District Council, 2024); and
 - KentAir website (Kent and Medway Air Quality Partnership, 2024).

- MAGIC website (Natural England, 2024) – to identify ecological sites within the air quality study areas; and
- Air Pollution Information Service (APIS) (UK Centre for Hydrology and Ecology, 2024) – to identify any habitats or features of designated sites that are sensitive to nutrient nitrogen and acid deposition.

8.4.5 There is sufficient baseline data to inform the assessment, therefore no project specific air quality monitoring has been undertaken.

Assessment Criteria

8.4.6 This section sets out the methodology used for assessing the effects on air quality for those aspects scoped into the assessment.

Construction dust emissions

8.4.7 During the construction phase, there is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined in the IAQM construction dust guidance (Institute of Air Quality Management, 2024) and relevant mitigation measures have been identified. This guidance is recommended in The Air Quality Technical Planning Guidance 2016 (Thanet District Council, 2016). The methodology is summarised in the following paragraphs and detailed assessment steps are presented in **Application Document 6.3.3.8.A Appendix 3.8.A Construction Dust Assessment and Methodology**.

8.4.8 There is also the potential for fugitive dust emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction dust and its outcome are considered applicable in relation to decommissioning and a separate assessment for fugitive dust emissions for the decommissioning phase has not been undertaken.

Sensitivity of air quality receptors

8.4.9 The sensitivity of the area to dust impacts, can be defined as low, medium, or high sensitivity, in accordance with IAQM construction dust guidance (Institute of Air Quality Management, 2024). This terminology is consistent with that in the IAQM construction dust guidance (Institute of Air Quality Management, 2024) and has therefore been used in the assessment, rather than that set out in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**.

8.4.10 The influencing factors to define receptor sensitivity to dust impacts are as follows:

- High – where human receptors are expected to be present continuously for extended periods of time and where a high level of amenity is expected e.g. residential properties, hospitals, schools, and care homes. Internationally or nationally designated ecological sites where the designated features may be affected by dust soiling, or where there is a particular dust sensitive species;
- Medium – where human receptors wouldn't reasonably be expected to be present continuously or regularly for extended periods and where a reasonable level of amenity is expected which could be diminished by dust soiling e.g. parks and places of work. Nationally designated ecological sites with dust sensitive features; and

- Low – where enjoyment of amenity would not reasonably be expected and exposure would be for limited periods e.g. footpaths, shopping streets and car parks. Locally designated ecological sites where the features may be affected by dust.

8.4.11 The IAQM construction dust guidance (Institute of Air Quality Management, 2024) defines a human receptor as:

“any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM over a time period relevant to the air quality objectives, as defined in the Government’s technical guidance for Local Air Quality Management. In terms of annoyance effects, this will most commonly relate to dwellings, but may also refer to other premises such as buildings housing cultural heritage collections (e.g. museums and galleries), vehicle showrooms, food manufacturers, electronics manufacturers, amenity areas and horticultural operations (e.g. salad or soft-fruit production)”.

8.4.12 An ecological receptor is defined as *“any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats)”.*

Magnitude of dust effects

8.4.13 The scale and nature of the works determines the magnitude of dust arising as small, medium, or large. This terminology is consistent with that in the IAQM construction dust guidance (Institute of Air Quality Management, 2024) and has therefore been used in the assessment, rather than that set out in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**.

8.4.14 The relevant criteria to define the potential magnitude of dust emission includes the following factors:

- Small – demolition volume under 12,000 m³ less than 6 m above ground level, total site area less than 18,000 m², soil type with large grain size, construction material with low potential for dust release, less than 20 outward Heavy Duty Vehicle (HDV) trips per day, unpaved road length less than 50 m etc;
- Medium – demolition volume 12,000 m³ – 75,000 m³ 6 m – 12 m above ground level, total site area 18,000 m² – 110,000 m², moderately dusty soil type, potentially dusty construction material, 20 to 50 outward HDV trips per day, unpaved road length 50 – 100 m etc.; and
- Large – demolition volume greater than 75,000 m³, on-site crushing and screening, demolition activities greater than 12 m above ground level, total site area greater than 110,000 m², more than 10 heavy earth moving vehicles active at any one time, on site concrete batching, sandblasting, more than 50 outward HDV trips per day, unpaved road length greater than 100 m etc.

Significance of effects

8.4.15 The IAQM construction dust guidance (Institute of Air Quality Management, 2024) categorises the unmitigated risk of dust impacts on human health and amenity (rather than ascribe a significance of effect) as a means of identifying the level of dust emissions mitigation required to ensure that residual effects are 'not significant'. The risk of dust impact categories are presented in Tables 1.6 to 1.8 **Application Document 6.3.3.8.A Appendix 3.8.A Construction Dust Assessment and**

Methodology. A higher dust risk rating requires more stringent mitigation measures in order to limit residual effects.

Vehicle emissions

- 8.4.16 The assessment of the impacts of vehicle emissions from traffic related to the construction phase of the Proposed Project is based on the IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017). This provides screening criteria indicating the thresholds above which an assessment may be necessary. There are thresholds for the daily flows of Light Duty Vehicles (LDVs) and HDVs (greater than 3.5t), which vary depending on whether an AQMA is present or not. Where the criteria are met, an assessment is generally considered necessary to determine the concentrations of pollutants in ambient air at human or ecological receptors adjacent to the roads that meet the criteria. The IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) are as follows:
- A change in LDV flows of >100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA, or >500 AADT elsewhere;
 - A change in HDV flows of >25 AADT within or adjacent to an AQMA, or >100 AADT elsewhere;
 - Where a road is realigned by 5 m or more and is within an AQMA; and
 - Where a junction is added or removed close to existing receptors.
- 8.4.17 There is also the potential for vehicle emissions during the decommissioning phase. Vehicle trip rates associated with the decommissioning phase are not available. However, in the event that the Proposed Project is decommissioned, there are expected to be fewer Heavy Goods Vehicle (HGV), Light Goods Vehicle (LGV), and worker arrivals and departures associated with the decommissioning phase of the Kent Onshore Scheme than during the construction phase. It is therefore considered reasonable to assume that the impacts of the decommissioning phase will be the same as, or less than, the construction phase in terms of vehicle emissions.
- 8.4.18 During the operational and maintenance phase, the Proposed Project will be staffed by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. This is likely to include up to four daily car/LGV trips associated with two staff members who will be on-site or on-call at all times for the proposed Minster Converter Station. In addition, there will be monthly substation inspections and annual maintenance visits for Minster Substation and Minster Converter Station and overhead HVAC connection, which would be carried out by LGVs and potentially HGVs on rare occasions where equipment needs to be replaced. Due to the low level of trips likely to be generated, which would be well below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017), air quality impacts associated with operational phase vehicle emissions will not be significant and have not been subject to further assessment.

Sensitivity of air quality receptors

- 8.4.19 Should screening of the relevant data indicate that any of the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) for the daily flows of light duty vehicles and heavy-

duty vehicles are met, then potential impacts of vehicle emissions at sensitive receptor locations are assessed by calculating the change in NO₂ and particulate matter concentrations as a result of the Proposed Project.

- 8.4.20 LAQM.TG(22) (Department for Environment, Food and Rural Affairs, 2022) defines a sensitive receptor as a location representative of human (or ecological) exposure to a pollutant, over a time period relevant to the objective that is being assessed against, where the Air Quality Strategy objectives are considered to apply, as detailed in Table 8.8.

Table 8.8 Examples of where the AQS Objectives apply

Averaging Period	Objectives Should Apply At	Objectives Should Not Apply At
Annual Mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-Hour Mean	All locations where the annual mean objective would apply, together with hotels and gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1-Hour Mean	All locations where the annual mean and 24-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

- 8.4.21 All air quality receptors are treated equally, with sensitivity being identified as locations representative of exposure to the averaging periods of relevant air quality objectives.

Magnitude of vehicle emission effects

- 8.4.22 Should the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) be exceeded, detailed dispersion modelling is undertaken using Atmospheric Dispersion Modelling Software (ADMS) to predict pollutant concentrations at worst case receptor locations within 200 m of affected vehicle routes. The magnitude of change is calculated, and total concentrations compared against the relevant AQS objectives/Critical Levels (Table 8.1 and Table 8.2). Further details regarding the detailed modelling undertaken for this assessment are presented in **Application Document 6.3.3.8.B Appendix 3.8.B Air Quality Modelling Methodology**.

Significance of effects

- 8.4.23 The significance of vehicle emission effects is determined in accordance with the IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017) and is dependent upon the percentage change in the predicted NO₂, PM₁₀, PM_{2.5} and NO_x concentrations between the 'without and with Proposed Project' scenarios, relative to the relevant air quality objectives, as presented in Table 8.9.

Table 8.9 IAQM impact descriptors for individual receptors

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 – 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

- 8.4.24 The IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017) notes that the impact descriptors in Table 8.9 are for individual receptors only and the overall significance of effect should be determined using professional judgement, taking into the degree of impact and factors such as:
- the existing and future air quality in the absence of the development;
 - the extent of current and future populations' exposure to the impact; and
 - the influence and validity of any assumptions adopted when undertaking the prediction of impacts.
- 8.4.25 Significance of construction vehicle emissions effects for ecological receptors is assessed in accordance with the Guide to the Assessment of Air Quality Impacts on

Designated Nature Conservation Sites (Institute of Air Quality Management, 2020). The guidance states that “*the 1% threshold has become widely used throughout the air quality assessment profession to define a reasonable quantum of long-term pollution which is not likely to be discernible from fluctuations in background/measurements*”. As such, for the purpose of this assessment, if the change in NO_x, NH₃ and N deposition as a result of construction vehicle emissions from the Proposed Project is less than 1% of the relevant critical load/level, then the effect of construction vehicle emissions is considered to be not significant. Where the 1% threshold is exceeded, this does not necessarily mean that a significant effect is caused. Rather, it indicates that further assessment work is required to evidence a conclusion as to whether the change in air quality is likely to have a significant effect on the ecological receptor.

NRMM emissions

- 8.4.26 The assessment of construction phase NRMM emissions is based on the IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017), LAQM.TG(22) (Department for Environment, Food and Rural Affairs, 2022) and professional judgement.
- 8.4.27 There is also the potential for NRMM emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction phase NRMM emissions and its outcome are considered applicable in relation to decommissioning, and a separate assessment of NRMM emissions during the decommissioning phase has not been undertaken.

Sensitivity of air quality receptors

- 8.4.28 As stated previously, all air quality receptors are treated equally, with sensitivity being identified as locations representative of exposure to the averaging periods of relevant air quality objectives. LAQM.TG(22) (Department for Environment, Food and Rural Affairs, 2022) defines a sensitive receptor as a location representative of human (or ecological) exposure to a pollutant, over a time period relevant to the objective that is being assessed against, where the Air Quality Strategy objectives are considered to apply, as detailed in Table 8.8.

Magnitude of NRMM emissions effects

- 8.4.29 If required, detailed dispersion modelling of NRMM emissions is undertaken using ADMS to predict pollutant concentrations at worst case receptor locations. The magnitude of change is calculated and total concentrations compared against the relevant AQS objectives/Critical Levels (Table 8.1 and Table 8.2).

Significance of effects

- 8.4.30 The significance of NRMM emissions effects is assessed in accordance with the IAQM and EPUK Development Control guidance (Institute of Air Quality Management and Environmental Protection UK, 2017) where the overall significance of the project in terms of NRMM emissions is then determined using professional judgement, taking into account factors such as the baseline and future air quality in the absence of the Proposed Project, the number of receptors affected (which is determined using the

IAQM Impact Descriptors shown in Table 8.9) and the influence and validity of any assumptions adopted when undertaking the assessment.

- 8.4.31 Significance of NRMM emissions effects for ecological receptors is assessed in accordance with the Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Institute of Air Quality Management, 2020). If the long-term Process Contribution (PC) is less than 1% of relevant the critical load/level, then the effect of NRMM emissions is considered to be not significant. As stated previously, where the 1% threshold is exceeded this does not necessarily mean that a significant effect is caused, it requires further assessment work to evidence a conclusion as to whether the change in air quality is likely to cause a significant effect on the ecological receptor.

Substation and Converter Station back-up generator emissions

- 8.4.32 As described in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**, a back-up diesel generator is proposed at Minster Substation and Converter Station during the operational phase. This has been assessed following the methodology outlined for the assessment of NRMM emissions.

Assumptions and Limitations

- 8.4.33 The following limitations and assumptions have been identified:
- It is assumed that all construction activities, other than construction traffic using public roads, will take place within the Kent Onshore Scheme Order Limits;
 - Dust generating activities have been assumed to occur across the full area within the Kent Onshore Scheme boundary. This is a worst case assumption included to cover all potential effects;
 - Construction traffic data assumptions are provided in **Application Document 6.2.3.7 Part 3 Kent Chapter 7 Traffic and Transport**;
 - It is assumed for the purpose of the assessment that NRMM could be used throughout the Order Limits, however, the majority of NRMM will be used at the construction compounds, Minster Converter Station, and Minster Substation;
 - There is limited detail regarding decommissioning activities. Potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction phase air quality effects is considered applicable in relation to decommissioning; and
 - It is assumed that all data provided by third parties is accurate.

8.5 Basis of Assessment

- 8.5.1 This section sets out the assumptions that have been made in respect of design flexibility maintained within the Proposed Project and the consideration that has been given to alternative scenarios and the sensitivity of the assessment to changes in the construction commencement year.
- 8.5.2 Details of the available flexibility and assessment scenarios are presented in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the**

Flexibility Assumptions

- 8.5.3 The environmental assessments have been undertaken based on the description of the Proposed Project provided in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**. To take account of the flexibility allowed in the Proposed Project, consideration has been given to the potential for effects to be of greater or different significance should any of the permanent or temporary infrastructure elements be moved within the Limits of Deviation (LoD) or Order Limits.
- 8.5.4 The assumptions made regarding the use of flexibility for the main assessment, and any alternatives assumptions are set out in Table 8.10.

Table 8.10 Flexibility assumptions

Element of flexibility	How it has been considered within the assessment
Lateral LoD High Voltage Direct Current (HVDC) cables	Changing the location of the of the HVDC/HVAC cables laterally would not affect the outcome of the construction dust assessment, vehicle emissions, or NRMM emissions. Therefore, any lateral movement of the HVDC cables within the LoD would not affect the outcome of the assessment.
Lateral LoD Minster Converter Station and Minster Substation	To allow for flexibility of the lateral movement of Minster Converter Station and Minster Substation, it has been assumed that the operation phase back-up generators would be located anywhere within the LoD. Therefore, any lateral movement of Minster Converter Station and Minster Substation within the LoD would not affect the outcome of the assessment.
Vertical LoD Minster Converter Station and Minster Substation	Vertical movement of Minster Converter Station and Minster Substation within the LoD will not affect the construction vehicle emissions assessment as the construction vehicle numbers have been based on the maximum height, as a worst case. Similarly, the construction dust assessment is based on worst case parameters (i.e. worst case construction vehicle numbers). Additionally, the potential magnitude of dust emissions for construction activities has been assessed as large (the highest rating). As the rating is already large due to several factors (including total building volume and construction material), the outcome of the construction dust assessment would not be affected by the height of Minster Converter Station and Minster Substation.

Element of flexibility	How it has been considered within the assessment
	The vertical movement of Minster Converter Station and Minster Substation would not affect the outcome of the sub-station and converter station generator and NRMM emissions assessments.
Lateral LoD overhead line	Changing the location of the of the overhead cables laterally within the LoD would not affect the outcome of the construction dust assessment, vehicle emissions, or NRMM emissions. Therefore, any lateral movement of the overhead line within the LoD would not affect the outcome of the assessment.
Vertical LoD overhead line	Vertical movement of overhead lines within the LoD should not affect the outcome of any of the aspects considered in the air quality assessment. As such, no flexibility in assumptions has been considered for the vertical movement of overhead lines.
Order Limits – temporary construction works	<p>For the construction dust assessment, it has been assumed that construction activities could be undertaken up to the Kent Onshore Scheme Order Limits (Application Document 6.4.3.8.1 Kent Construction Dust Assessment Study Area), as a reasonable worst case in accordance with the IAQM construction dust guidance (Institute of Air Quality Management, 2024). Therefore, the location of temporary construction works would not affect the outcome of the construction dust emissions assessment.</p> <p>The location of construction activity within the Order Limits would not affect the number of construction vehicles required.</p> <p>It is assumed for the purpose of the assessment that NRMM emissions could occur anywhere within the Order Limits, however emissions would be transient and the majority of NRMM emissions would be from equipment used at the construction compounds, Minster Converter Station and Minster Substation. Therefore, the location of temporary construction works within the Order Limits would not affect the outcome of the NRMM emissions assessment.</p>

Sensitivity Test

- 8.5.5 It is likely that under the terms of the draft DCO, construction could commence in any year up to five years from the granting of the DCO which is assumed to be 2026. Consideration has been given to whether the effects reported would be any different if the works were to commence in any year up to year five. Where there is a difference, this is reported in Section 8.12.

8.6 Study Area

Construction dust

- 8.6.1 The IAQM Construction Dust guidance (Institute of Air Quality Management, 2024) recommends the following study area for construction phase dust:
- 250 m from the Order Limits for human receptors and up to 50 m for ecological receptors; and

- 50 m from the route(s) used by construction vehicles on the public highway, up to 250 m from the proposed bellmouths.

8.6.2 However, NE raised concerns about the study area being smaller for ecological receptors than for human receptors. As such, the study area for ecological areas has been amended so that it is the same as for human receptors. The study area for construction phase dust for the Proposed Project is therefore as follows:

- 250 m from the Order Limits for human and ecological receptors; and
- 50 m from the route(s) used by construction vehicles on the public highway, up to 250 m from the proposed bell-mouths for human and ecological receptors.

8.6.3 The construction dust study area is presented in **Application Document 6.4.3.8.1 Kent Construction Dust Assessment Study Area**.

Construction vehicle emissions

8.6.4 The study area for assessment of construction vehicle emissions is an area within 200m of the construction traffic routes which exceed the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017), in accordance with DMRB LA105 (National Highways (formerly Highways England), 2024). The construction vehicle emissions study area is presented in **Application Document 6.4.3.8.4 Air Quality Receptor and Verification Locations – Kent Onshore Scheme**.

NRMM emissions

8.6.5 No specific guidance exists on the definition for a study area for NRMM point sources due to the large variation in the extent of potential impact from different types of sources. For the purposes of this assessment, identification of any receptors within 200 m of the construction compounds is considered appropriate given the size and temporary nature of the operations, based on professional judgement. Beyond this distance, it is judged that the effect of any emissions on local air quality would have no potential to be significant. Whilst NRMM could be used anywhere within the Order Limits, it has been assumed that the majority of NRMM would be used within the construction compounds, converter station and substation LoDs; generators in other areas are considered to be of a size, and their use appropriately infrequent, to be excluded from the assessment. As such, the study area for NRMM emissions is an area within 200m of the construction compounds and of the LoD for Minster Converter Station and Minster Substation, as presented in **Application Document 6.4.3.8.2 Kent NRMM and Substation and Converter Station Back-Up Generator Emissions Assessment Study Area**.

Substation and converter station back-up generator emissions

8.6.6 As with NRMM, no specific guidance exists on the definition for a study area for generators. For the purposes of this assessment a study area of up to 200 m from the Minster Converter Station and Substation boundary is considered appropriate. Beyond this distance it is judged that the effect of any emissions on local air quality would have no potential to be significant. As a reasonable worst case, the study area has been defined as an area within 200 m of the LoD for Minster Converter Station and Minster Substation, as presented in **Application Document 6.4.3.8.2 Kent NRMM and**

8.7 Baseline Conditions

- 8.7.1 This section of the chapter comprises an overview of the baseline conditions for air quality, in order to establish the likely type and nature of potential effects.

Baseline Environment

- 8.7.2 A review of the existing baseline has been undertaken to establish an understanding of the baseline air quality environment and to identify areas that are likely to be sensitive to changes in emissions as a result of the Proposed Project.
- 8.7.3 As required by Part VI of the Environment Act (1995) (HM Government, 1995), all local authorities produce ASRs each year. The most recently available reports are the 2024 ASRs for DDC (Dover District Council, 2024) and TDC (Thanet District Council, 2024) which summarise air quality within each local authority during 2023.
- 8.7.4 DDC has declared the following AQMAs for exceedances of the annual mean NO₂ AQS objective (Dover District Council, 2024), neither of which are within the study areas identified for the air quality assessment:
- A20 AQMA – declared in 2004 and amended in 2007 and 2009 for annual mean NO₂. This is an area following the A20 from just west of the Limekiln Roundabout at the western end to a point about 140 m from the Eastern Docks in Dover. Following the amendment, it no longer includes properties in Marine Parade and East Cliff to the east; and
 - High Street/Lady-well AQMA – declared in 2007 for annual mean NO₂. This is an area encompassing roads and properties between the junction of Effingham Crescent/High Street, and Priory Hill/High Street.
- 8.7.5 Although there was previously an AQMA declared by TDC in Ramsgate, this was revoked in September 2024 (Thanet District Council, 2024). There are no other AQMAs in the TDC area.

Monitoring data

- 8.7.6 In 2023, DDC undertook automatic monitoring of PM₁₀ at one site, Dover Centre, which is located on the A20 Townwall Street (Dover District Council, 2024). This is located just over 18 km from the Order Limits and is outside of the study areas for the air quality assessment. In 2023, this site recorded an annual mean PM₁₀ concentration of 21.5 µg/m³, which is well below the AQS objective. DDC also undertakes monitoring of NO₂ using diffusion tubes. In 2023, all monitoring sites measured annual mean NO₂ concentrations below the AQS objective. The closest diffusion tube site to the Order Limits is DV-36 (Sholden Primary School), which is located just under 8 km south of the Order Limits on London Road in Deal. In 2023, this site recorded an annual mean NO₂ concentration of 14.3 µg/m³, which is well below the AQS objective.
- 8.7.7 TDC undertakes automatic monitoring of PM₁₀ and NO₂ at two sites (ZH4 and ZH5). ZH4 is the closest to the Order Limits and is located approximately 3 km east of the Order Limits on Boundary Road, Ramsgate. In 2023, this site measured annual mean PM₁₀ and NO₂ concentrations of 25.5 µg/m³ and 14.9 µg/m³, respectively. Both of which

are well below the AQS objectives. TDC also undertakes monitoring of NO₂ using diffusion tubes. In 2023, all monitoring sites measured annual mean NO₂ concentrations below the AQS objective. The closest diffusion tube site to the Order Limits is TH16 (Earlsmede Crescent, Cliffsend), which is located approximately 500m east of the Order Limits. In 2023, this site recorded an annual mean NO₂ concentration of 10.2 µg/m³, which is well below the AQS objective (Thanet District Council, 2024).

- 8.7.8 The AQMAs and monitoring locations closest to the Kent Onshore Scheme are presented in **Application Document 6.4.3.8.3 Air Quality Baseline** and monitoring data is presented in **Application Document 6.3.3.8.C Appendix 3.8.C Air Quality Monitoring Data**.

Receptors

- 8.7.9 There are a number of human receptors surrounding the Kent Onshore Scheme. These include:

- Great Oaks Small School which is less than 30 m south of the Order Limits along Jutes Lane; and
- A number of residential properties along Ebbsfleet Lane, Sandwich Road, Cliffsend Road, Cottington Road; and Marsh Farm Road.

- 8.7.10 The closest human receptor to the Minster converter station and substation is Great Oaks Small School which is approximately 600 m to the east the Minster converter station and substation.

- 8.7.11 There are several ecological receptors within the vicinity of the Order Limits. The closest ecological receptor is Sandwich Bay to Hacklinge Marshes Site of Special Scientific Interest (SSSI); part of the SSSI falls inside the Order Limits about 20 m from the Minster Converter Station and Minster Substation boundary. Along the coast to the east of the Proposed Project, there is Thanet Coast & Sandwich Bay Special Protection Area (SPA), Sandwich Bay Special Area of Conservation (SAC), Thanet Coast SAC, Sandwich Bay to Hacklinge Marshes SSSI, Sandwich and Pegwell Bay National Nature Reserve (NNR) and Thanet Coast and Sandwich Bay Ramsar which all overlap the Order Limits along the coast. See **Application Document 6.2.3.2 Part 3 Kent Chapter 2 Ecology and Biodiversity** for more information on ecological sites in the vicinity of the Proposed Project.

Defra background concentrations

- 8.7.12 Predictions of background pollutant concentrations are periodically produced by Defra to assist local authorities in their review and assessment of air quality. These are produced for every 1 km Ordnance Survey grid square in the UK. The Proposed Project is located across several grid squares. Data for these grid squares were downloaded from the Defra website (Department for Environment, Food and Rural Affairs, 2024) for the purposes of the assessment. Table 8.11 summarises the range of background concentrations for 2024 relating to the grid squares covering the Order Limits and surrounding study area.

Table 8.11 Background pollutant concentrations 2024 (Defra 2024)

Pollutant	Minimum Concentration (µg/m³)	Maximum Concentration (µg/m³)	Average Concentration (µg/m³)	Annual Mean Air Quality Objective / Critical Level (µg/m³)
NO ₂	6.5	8.5	7.0	40
PM ₁₀	9.0	12.0	10.7	40
PM _{2.5}	5.5	5.9	5.7	20*
NO _x	8.3	10.9	8.9	30

*LV presented as this is lower than the AQS objective

- 8.7.13 Table 8.11 shows that 2024 background NO₂, particulate matter and NO_x concentrations in the vicinity of the Proposed Project are well below the relevant annual mean air quality objectives and Critical Level.

Future baseline

- 8.7.14 Background pollutant concentrations are predicted to decrease in future years, as evidenced by trends observed from local authority monitoring data and future predicted Defra background map concentrations (Department for Environment, Food and Rural Affairs, 2024).
- 8.7.15 Traffic emissions are likely to contribute to baseline air quality concentrations in the vicinity of the Proposed Project. Whilst vehicle numbers are likely to increase, emissions (per vehicle) are predicted to decrease over time due to new technology, increasingly stringent emission regulations and zero emission vehicles.
- 8.7.16 Consented developments in the surrounding area may increase traffic flows in the vicinity of the Project. This may therefore result in an increase in local air quality concentrations.
- 8.7.17 In addition, construction of any consented developments may result in a temporary increase in particulate concentrations as a result of fugitive dust emissions during construction works.
- 8.7.18 Predicted background data (Department for Environment, Food and Rural Affairs, 2024) for the grid squares covering the Proposed Project and surrounding study area for the construction year 2030 (when construction activities are anticipated to generate the highest vehicle movements for the Kent Onshore Scheme) are presented in Table 8.12.

Table 8.12 Predicted background pollutant concentrations 2030

Pollutant	Minimum Concentration (µg/m³)	Maximum Concentration (µg/m³)	Average Concentration (µg/m³)	Annual Mean Air Quality Objective / Critical Level (µg/m³)
NO ₂	5.5	7.2	5.8	40
PM ₁₀	8.5	11.5	10.2	40
PM _{2.5}	5.0	5.5	5.2	20*
NO _x	6.9	9.2	7.3	30

*LV presented as this is lower than the AQS objective

- 8.7.19 Table 8.12 shows that predicted 2030 background NO₂, particulate matter and NO_x concentrations in the vicinity of the Proposed Project are well below the relevant annual mean air quality objectives and Critical Level.
- 8.7.20 Table 8.13 summarises the range of background concentrations for 2032 (opening year of the Proposed Project) relating to the grid squares covering the Proposed Project.

Table 8.13 Predicted future background pollutant concentrations 2032

Pollutant	Minimum Concentration (µg/m³)	Maximum Concentration (µg/m³)	Average Concentration (µg/m³)	Annual Mean Air Quality Objective (µg/m³)
NO ₂	5.2	6.9	5.5	40
PM ₁₀	8.4	11.4	10.1	40
PM _{2.5}	5.0	5.4	5.2	20*
NO _x	6.6	8.7	7.0	30

*LV presented as this is lower than the AQS objective

- 8.7.21 Table 8.13 shows that 2032 background NO₂, NO_x, and particulate matter concentrations in the vicinity of the Proposed Project are below the relevant annual mean air quality objectives and Critical Level.

PM_{2.5} 2040 Annual Mean Target

- 8.7.22 Whilst there is currently limited Defra guidance on how the PM_{2.5} Targets will be applied in the planning process, The Environmental Targets (Fine Particulate Matter) (England) Regulations 2022 (HM Government, 2022) and the interim guidance (Department for Environment, Food and Rural Affairs, 2024) suggest that compliance with the targets will be determined at qualifying monitoring stations (which are part of Defra's Automatic Urban and Rural Network (AURN)). The nearest qualifying monitoring station to the

Kent Onshore Scheme is Canterbury Urban Background. In 2023, the annual mean PM_{2.5} concentration was 9 µg/m³ which is below the 2040 target (10 µg/m³) (Department for Environment, Food and Rural Affairs, 2024). As such it is unlikely that there will be any exceedance of the PM_{2.5} targets in the vicinity of the Proposed Project. PM_{2.5} concentrations are expected to decline in the future as a result of the population exposure reduction target.

8.8 Proposed Project Design and Embedded Mitigation

- 8.8.1 The Proposed Project has been designed, as far as possible, following the mitigation hierarchy in order to, in the first instance, avoid or reduce air quality impacts and effects through the process of design development, and by embedding measures into the design of the Proposed Project.
- 8.8.2 As set out in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**, mitigation measures typically fall into one of three categories: embedded measures; control and management measures; and additional mitigation measures. Embedded, and control and management measures are set out below. Additional mitigation measures are discussed in Section 8.10.

Embedded Measures

- 8.8.3 Embedded measures have been integral in reducing, and where possible avoiding, the air quality effects of the Proposed Project. Measures that have been incorporated are:
- Sensitive routeing and siting of infrastructure and temporary works to avoid or reduce air quality impacts on sensitive receptors;
 - Commitments made within **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**; and
 - AQ11 - Ensure the generators adhere to Stage V emissions standards and seek alternatives where possible, such as batteries or alternative fuel; and should diesel generators be used, ensure they are placed as far from Sandwich Bay to Hacklinge Marshes SSSI as possible and that testing is kept to a minimum (see **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**).

Control and Management Measures

- 8.8.4 Measures relevant to the control and management of impacts during construction have been included within **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**. The following measures have been taken into account in assessing the air quality effects of the Proposed Project:
- GG02 - A Construction Environmental Management Plan (CEMP), Landscape and Ecological Management Plan (LEMP) and Construction Traffic Management and Travel Plan (CTMTP) will be produced and submitted to the relevant authority for approval prior to construction of the relevant stage of the Proposed Project to which it relates. The plan produced will be substantially in accordance with the outline versions submitted as part of the application for development consent. In accordance with the Requirement 6 of Schedule 3 of the draft DCO, the contractor

will need to comply with the approved plans (including any amendments to the plans subsequently approved).

- GG03 - The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans. The title and contact number of person(s) accountable for issues relating to dust, waste, water, noise, vibration and soil will be displayed at site boundary.
- GG09 - The name and contact details for the Proposed Project will be displayed at the entrance to all compounds. This will include an emergency number.
- GG10 - Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- GG11 - Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include but not be limited to:
 - preventing pests and vermin control and treating any infestation promptly, including arrangements for the proper storage and disposal of waste produced on site;
 - access gates to be located at least 10 m from receptors where possible;
 - inspecting and collecting any waste or litter found on site;
 - locating or designing site offices and welfare facilities to limit the overlooking of residential properties;
 - locating designated smoking/vaping areas to avoid nuisance to neighbours;
 - managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day; and
 - managing potential off-site contractor and visitor parking.
- GG12 - Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows:
 - Euro 4 (NOx) for petrol cars, vans and minibuses;
 - Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and
 - Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).

Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so. In addition, plant and vehicles will conform to relevant applicable standards for the vehicle type.

- GG15 - Runoff across the site will be controlled through a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There will be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency).

- GG16 - Where required, wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps. Ensure there is an adequate area of hard surfaced road between the wash facility and the site exit, wherever site size and layout permits.
- GG17 - Where required, wheel washing will be provided at each main construction works compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- GG18 - Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. Avoid dry sweeping of large areas.
- GG19 - Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
- GG20 - Bonfires and the burning of waste material will be prohibited.
- GG27 - Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the Proposed Project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken. This will be made available to local authorities for review on request.
- GG28 - Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

8.8.5

Further air quality specific measures relevant to the control and management of impacts during construction have been identified following the construction dust risk assessment as outlined in **Application Document 6.3.3.8.A Appendix 3.8.A Construction Dust Assessment and Methodology**; these measures are included within **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice** and are as follows:

- AQ01 - Develop and implement an AQMP, approved by the Local Authority.
- AQ02 - Monitoring
 - Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.
 - Carry out regular site inspections to monitor compliance with the AQMP, record inspection results, and make an inspection log available to the local authority when asked.

- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible, commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences.
- AQ03 - Preparing and maintaining the site
 - Erect solid screens or barriers around dusty activities or the site boundary so that they are at least as high as any stockpiles on site.
 - Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
 - Keep site fencing, barriers and scaffolding clean using wet methods.
 - Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site, cover as described below.
- AQ04 - Operating vehicle/machinery and sustainable travel
 - Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
 - Impose and signpost a maximum speed limit on unsurfaced haul roads and work areas.
 - Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated to minimise dust and particulate matter emissions and to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
- AQ05 - Operations
 - Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
 - Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
 - Use enclosed chutes and conveyors and covered skips.
 - Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- AQ06 - Earthworks
 - Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
 - Only remove the cover in small areas during work and not all at once.
- AQ07 - Construction
 - Avoid scabbling (roughening of concrete surfaces) if possible.

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

- AQ08 - Trackout

- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned where possible.

- AQ09 - Ensure all equipment complies with the appropriate Non-Road Mobile Machinery standards. Use stage 4 NRMM as a minimum and stage 5 where possible. Additionally, where possible, use alternative / renewable energy to power NRMM.

8.8.6 Measures relating to construction traffic have been included in **Application Document 7.5.1.2 Outline Construction Traffic Management and Travel Plan (Kent)**.

8.8.7 **Application Document 7.5.6.2 Air Quality Management Plan – Kent** sets out the mitigation measures required for the construction phase of Kent Onshore Scheme. It also includes proposed approximate air quality monitoring locations that will be in place for the construction phase of the project, which will be used to ensure mitigation measures are working effectively.

8.9 Assessment of Impacts and Likely Significant Effects

8.9.1 The assessment of the effects of the Proposed Project on air quality receptors described in this section considers the embedded and control and management measures described in Section 8.8.

Construction Phase

Construction dust

8.9.2 A construction dust assessment has been undertaken in accordance with the IAQM construction dust guidance (Institute of Air Quality Management, 2024), as detailed in **Application Document 6.3.3.8.A Appendix 3.8.A Construction Dust Assessment and Methodology**.

- 8.9.3 The construction dust risk assessment has identified high sensitivity human receptors within the study area, including Great Oaks Small School and residential properties in Minster, Ebbsfleet, Richborough and Cliffsend, as well as high sensitivity ecological sites including Sandwich Bay to Hacklinge Marshes SSSI, Thanet Coast & Sandwich Bay SPA, Sandwich Bay SAC, Thanet Coast SAC, and Thanet Coast and Sandwich Bay Ramsar site.
- 8.9.4 Combining the dust emissions magnitude and area sensitivities, the overall risk of impacts with no applied mitigation for each construction activity has been determined. The potential risk of dust soiling is medium for earthworks, construction, and trackout (deposition of dust and dirt from construction sites onto public roads by construction vehicles). The potential risk of human health impacts is low for earthworks, construction, and trackout. The potential risk of temporary dust impacts on ecological sites is high for earthworks, construction, and trackout. The assessment has therefore indicated that the maximum risk of dust effects is high, as a worst case.
- 8.9.5 Mitigation measures have been identified based on a high risk of dust effects determined by the construction dust assessment, with high-risk measures for earthworks, construction activities, and trackout. These measures have been incorporated into the outline CEMP (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**).
- 8.9.6 With the implementation of the relevant mitigation measures outlined, the temporary effect of construction dust emissions is predicted to be not significant.

Construction vehicle emissions

Primary construction vehicle routes

- 8.9.7 The Kent Onshore Scheme will predominantly be accessed via the following four access points during the construction phase (as shown on **Application Document 6.4.3.7.2 Heavy Goods Vehicle (HGV) Routing Plan**):
- A256 Northbound Carriageway (K-BM02): Main access during the construction phase accommodating circa 91% of all construction vehicle trips (circa five years, peak year in terms of total annual movements expected in 2030);
 - Ebbsfleet Lane (K-BM01): To be used for approximately ten months during construction (prior to 2030 peak) accommodating circa 4% of all construction vehicle trips;
 - Ebbsfleet Lane North (K-BM06): Secondary access during construction to be used for approximately six months during construction (prior to 2030 peak) accommodating circa 2% of all construction vehicle trips; and
 - Sandwich Road (K-BM07): Secondary access during construction to be used for approximately six months during construction (prior to 2030 peak) accommodating circa 2% of all construction vehicle trips.
- 8.9.8 A very low proportion of construction vehicles (circa 1% in total, and less than 1% HGVs) is expected across the remaining access points which comprise K-BM03 (Jutes Lane), K-BM04 (Marsh Farm Road) and K-BM05 (Whitehouse Drove).
- 8.9.9 Traffic data have been provided for the construction vehicle routes for the peak construction year and are summarised in Table 8.14. The link locations are presented in **Application Document 6.4.3.7.2 HGV Routing Plan**.

8.9.10 It should be noted that the peak construction year, in terms of total annual construction vehicle movements for the Kent Onshore Scheme, would be 2030. However, to ensure a worst-case assessment, the flows presented in Table 8.14 are based on the individual peaks of each access point (which is 2030 for K-BM02 and prior to 2030 for K-BM01, K-BM06 and K-BM07).

Table 8.14 24-Hour AADT for the peak construction year associated with the Proposed Project (2030)

Link Reference	Link Description	LGVs	HGVs
K-RL1	A299 Hengist Way (between the Monkton and Minster Roundabouts)	102	88
K-RL2	A299 Hengist Way (between the Minster and Cliffsend Roundabouts)	102	88
K-RL3	A299 Hengist Way (between the Cliffsend and the Sevenscore Roundabouts)	102	88
K-RL4	A299 Hengist Way (east of the Sevenscore Roundabout)	26	11
K-RL5a	A256 Richborough Way (between the Sevenscore and Ebbsfleet Roundabouts) - north of K-BM02	175	107
K-RL5b	A256 Richborough Way (between the Sevenscore and Ebbsfleet Roundabouts) - south of K-BM02	175	107
K-RL6	A256 Ramsgate Road (south of the Ebbsfleet Roundabout)	44	11
K-RL7	Sandwich Road (between Ebbsfleet Roundabout and Lord of the Manor Roundabout)	22	12
K-RL8	Ebbsfleet Lane	16	8
K-RL9	Cottington Link Road	8	2

8.9.11 None of the links presented in Table 8.14 are within an AQMA, as such, the less stringent IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) apply (a change in LDV flows of greater than 500 AADT, or a change in HDV flows of greater than 100 AADT).

Review of the traffic data presented in Table 8.14 indicates that the flows on the A256 (links K-RL5a and K-RL5b) would exceed the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017) and, as such, these roads have been screened in for detailed modelling.

Haul roads

- 8.9.12 The Kent Onshore Scheme will predominantly be accessed via K-BM01, K-BM02, K-BM06 and K-BM07.
- 8.9.13 Whilst 2030 represents the peak year of construction based on total annual forecast construction traffic movements, the peak year for flows varies. The flows for the peak year for the haul roads are as follows:
- The proposed main site access (K-BM02) to the west of the A256 would have 50 HGVs and 232 LGVs (two way) per day during the peak year (2030). In 2028, it would have 96 HDVs and 76 LDVs;
 - The haul road to the east of the A256 (accessing from K-BM01) would have flows of 8 HDVs and 16 LDVs during the peak year (prior to 2030);
 - The access K-BM06 would have flows of 2 HDVs and 8 LDVs (two way) during the peak year (prior to 2030); and
 - The access K-BM07 would have flows of 4 HDVs and 6 LDVs (two way) during the peak year (prior to 2030).
- 8.9.14 Review of the traffic data for the haul roads indicates that both the HDV and LDV flows on the haul roads would be below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017).
- 8.9.15 As the flows on haul roads would be below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017), it is considered the effect of construction vehicle emissions on any receptors within the vicinity of the haul roads would be not significant.

Construction vehicle emissions detailed modelling

- 8.9.16 ADMS Roads (version 5.0) was used to predict NO₂, PM₁₀, PM_{2.5} and NO_x concentrations at selected worst case receptor locations within the construction vehicle emissions study area.
- 8.9.17 Worst case human and ecological receptors were selected for inclusion in the model, as presented in Table 8.15 and in **Application Document 6.4.3.8.4 Air Quality Receptor and Verification Locations – Kent Onshore Scheme**.

Table 8.15 Worst case receptors within 200 m of the affected vehicle route

Receptor ID	Name	X OS Grid Reference (m)	Y OS Grid Reference (m)
R1	Residential Property, Ebbsfleet Lane (North)	633318	163239

Receptor ID	Name	X OS Grid Reference (m)	Y OS Grid Reference (m)
R2	Great Oaks Small School	633222	163067
R3	Residential Property, No 2 Ebbsfleet Lane	633624	162445
R4	Residential Property, Stonelees House, Ebbsfleet Lane	633594	162584
R5	Residential Property, Priory House, Ebbsfleet Lane	633667	162414
ECO 1	Sandwich Bay to Hacklinge Marshes SSSI	633471	162256
ECO 2	Sandwich Bay to Hacklinge Marshes SSSI	633529	162186
ECO 3	Sandwich Bay to Hacklinge Marshes SSSI/Sandwich & Pegwell Bay NNR/Thanet Coast & Sandwich Bay SPA and RAMSAR	633712	162463

- 8.9.18 The construction vehicle emissions assessment considered the following scenarios:
- Base Year (2023) – predicted baseline air quality scenario, used to characterise the air quality baseline and to carry out model verification;
 - Do-Nothing (2030) – predicted future air quality scenario in the Proposed Project's worst case construction year, without the Proposed Project; and
 - Do-Something (2030) – predicted future air quality scenario in the Proposed Project's worst case construction year, with the Proposed Project.

8.9.19 Further details on the model inputs are presented in **Application Document 6.3.3.8.B Appendix 3.8.B Air Quality Modelling Methodology**.

Modelling results

8.9.20 Table 8.16 presents the predicted NO₂ concentrations at the modelled receptors, for the Base Year, Do-Nothing, and Do-Something scenarios.

Table 8.16 Modelled annual mean NO₂ concentrations – human receptors

Receptor ID	Annual Mean NO ₂ Concentration (µg/m ³)			
	Base Year (2023)	Do-Nothing (2030)	Do-Something (2030)	Change
R1	14.6	9.0	9.0	0.0
R2	10.2	7.0	7.1	0.1
R3	11.3	7.6	7.6	0.0
R4	10.7	7.3	7.3	0.0
R5	11.5	7.7	7.7	0.0

- 8.9.21 The predicted NO₂ concentrations presented in Table 8.16 indicate that there are no predicted exceedances of the annual mean NO₂ AQS objective (40 µg/m³) at any of the modelled receptors. Additionally, exceedances of the 1-hour mean NO₂ AQS objective are unlikely to occur as the annual mean is less than 60 µg/m³.
- 8.9.22 In accordance with the IAQM and EPUK Development Control impact descriptors outlined in Table 8.9, the changes in annual mean NO₂ concentrations at all receptors are negligible (not significant).
- 8.9.23 Table 8.17 presents the predicted PM₁₀ concentrations at the modelled receptors, for the Base Year, Do-Nothing, and Do-Something scenarios.

Table 8.17 Modelled annual mean PM₁₀ concentrations – human receptors

Receptor ID	Annual Mean PM ₁₀ Concentration (µg/m ³)			
	Base Year (2023)	Do-Nothing (2030)	Do-Something (2030)	Change
R1	12.7	12.2	12.2	0.0
R2	12.1	11.5	11.6	0.1
R3	11.3	10.7	10.8	0.1
R4	11.1	10.5	10.6	0.1
R5	11.5	11.0	11.0	0.0

- 8.9.24 The predicted PM₁₀ concentrations presented in Table 8.17 indicate that there are no predicted exceedances of the annual mean PM₁₀ AQS objective (40 µg/m³) at any of the modelled receptors. Additionally, an exceedance of the 24-hour mean PM₁₀ AQS objective is unlikely to occur as the annual mean PM₁₀ concentration is less than 32 µg/m³.
- 8.9.25 In accordance with the IAQM and EPUK Development Control impact descriptors outlined in Table 8.9, the changes in annual mean PM₁₀ concentrations at all receptors are negligible (not significant).
- 8.9.26 Table 8.18 presents the predicted PM_{2.5} concentrations at the modelled receptors, for the Base Year, Do-Nothing and Do-Something scenarios.

Table 8.18 Modelled annual mean PM_{2.5} concentrations – human receptors

Receptor ID	Annual Mean PM _{2.5} Concentration (µg/m ³)			
	Base Year (2023)	Do-Nothing (2030)	Do-Something (2030)	Change
R1	6.5	5.9	6.0	0.1
R2	6.1	5.6	5.6	0.0
R3	6.2	5.6	5.6	0.0
R4	6.0	5.5	5.5	0.0
R5	6.3	5.8	5.8	0.0

- 8.9.27 The predicted PM_{2.5} concentrations presented in Table 8.18 indicate that there are no predicted exceedances of the annual mean PM_{2.5} LV (20 µg/m³), or of the target level (10 µg/m³), at any of the modelled receptors and the changes in annual mean PM_{2.5} concentrations at all receptors are negligible (not significant).
- 8.9.28 In accordance with the IAQM and EPUK Development Control impact descriptors outlined in Table 8.9, the changes in annual mean PM_{2.5} concentrations at all receptors are negligible (not significant).

Table 8.19 Modelled annual mean NOx concentrations – ecological receptors

Receptor ID	Annual Mean NOx Concentration (µg/m ³)			
	Base Year (2023)	Do-Nothing (2030)	Do-Something (2030)	Change
ECO1	14.2	9.4	9.4	0.0
ECO2	32.6	17.3	17.3	0.0
ECO3	16.9	10.6	10.6	0.0

8.9.29 The predicted NOx concentrations presented in Table 8.19 indicate that there are no predicted exceedances of the AQS Critical Level for NOx (30 µg/m³) at any of the modelled receptors in the opening year and there is no change in annual mean NOx concentrations at any of the modelled locations. As such, the changes in annual mean NOx concentrations at all ecological receptors are below 1% of the Critical Level and are therefore negligible (not significant).

8.9.30 Given that the predicted change in NOx concentrations is zero at all modelled locations, further assessment comprising the calculation of N deposition and NH₃ has not been undertaken. N deposition is made up of the NO₂ and NH₃ component of vehicle emissions. The Defra NOx to NO₂ calculator is used to generate NO₂ from the modelled road NOx. As such, there would be no change in the NO₂ component of N deposition between the Do-Nothing and Do-Something scenarios as presented in Table 8.19. As there is no government approved emission factors for NH₃, the National Highways NH₃ tool is used to generate the NH₃ component of the vehicle emissions (as detailed in **Application Document 6.3.3.8.B Appendix 3.8.B Air Quality Modelling Methodology**). This tool approximates the NH₃ component of the vehicle emissions by using the modelled road NOx and ratioing it to NH₃. As the change in NOx is zero, there would also be no change in NH₃ using this approach and therefore impacts of the construction phase on the Critical Levels for NOx and NH₃ and the critical loads in relation to N Deposition can all be considered negligible.

8.9.31 On the basis that the changes in NO₂, PM₁₀, PM_{2.5} and NOx concentrations are all negligible, temporary effects from construction vehicle emissions as a result of the Proposed Project have been determined as negligible (not significant).

NRMM emissions

8.9.32 Temporary construction compounds are required throughout the route to facilitate construction activities. These compounds store all materials necessary for the works, including plant, waste, cable ducts, cable drums, and accessories. In addition to storage, compounds also provide a location for site offices, parking, and welfare facilities for construction operatives.

8.9.33 The indicative locations of the construction compounds for the Kent Onshore Scheme are illustrated on **Application Document 2.14.2 General Arrangement Plans - Kent**.

Construction compounds are proposed adjacent to the combined converter station and substation site (construction compounds K01, K02 and K03), A256 bellmouth (construction compounds K04 and K05), and near the landfall site (construction compound K06). The construction compound at K05 may not be required in the field to the east of the A256 if the offshore cable were to be taken further inland (in that scenario only K04 to the west of the A256 would be required) depending on the final design. However, the worst-case of a compound also being required east of the A256 has been assessed.

- 8.9.34 It is understood that the Minster Substation and Minster Converter Station site will be connected to the existing Distribution Network Operator system to provide an electricity supply to the sites, both temporarily during construction and permanently for operation. However, there may be a requirement for generators at the construction compounds and other NRMM will be operational throughout the construction phase as indicated in **Application document 6.3.1.4.B Appendix 1.4.B Construction Plant Schedule**.
- 8.9.35 A small number of receptors within 200 m of the proposed construction compounds and Minster Substation and Minster Converter Station have been identified which include:
- Sandwich Bay to Hacklinge Marshes SSSI which is approximately 20 m from the Minster Converter Station and Substation LoD boundary; and
 - A residential property on the A299, which is approximately 130 m from the construction compound on Sandwich Road.
- 8.9.36 Background pollutant concentrations are well below the respective air quality objectives and Critical Level for each pollutant, as presented in Table 8.12 for the peak construction year (2030).
- 8.9.37 Several control measures relating to NRMM emissions have been included in the CEMP (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**) including AQ04, AQ09 and GG10.
- 8.9.38 Additionally, monitoring of NO₂, NO_x, PM₁₀, and PM_{2.5} is proposed at the boundaries of the construction compounds where there are receptors within 200 m to ensure the measures are working effectively, as detailed in the AQMP (**Application Document 7.5.6.2 Air Quality Management Plan - Kent**). Should monitored concentrations exceed the trigger thresholds, the construction activities would be reviewed and additional abatement controls implemented where required, or the site works may need to temporarily stop. New procedures or controls would be developed where problems continue to occur, and the AQMP would be updated if required.
- 8.9.39 Due to the temporary and transient nature of NRMM operation, low background concentrations, proximity of receptors, and NRMM control measures, the use of construction NRMM is unlikely to result in significant effects on local air quality that would result in exceedances of the AQS objectives and Critical Levels at receptors within 200m of the construction compound.
- 8.9.40 In addition, LAQM.TG(22) states that:
- “Experience of assessing the exhaust emissions from on-site plant (NRMM) and site traffic suggests that, with suitable controls and site management, they are unlikely to make a significant impact on local air quality.”*
- 8.9.41 Therefore, it is considered that the temporary effect of emissions from construction equipment and plant would be not significant.

Operation and Maintenance Phase

Operation and maintenance vehicle emissions

- 8.9.42 As stated previously, during the operational and maintenance phase the Proposed Project will be staffed by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. The number of trips likely to be generated would be well below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017).
- 8.9.43 A permanent bellmouth would be constructed on the A256 Richborough Way (K-BM02) which would provide access for both the construction and operation of the substation and converter station. However, this access point is not close to receptors, would not cause traffic to significantly accelerate/decelerate (as the junction would not include traffic lights or roundabouts) and would only be used by a small number of vehicles.
- 8.9.44 As such air quality effects associated with operational phase vehicle emissions are considered to be not significant.

Substation and Converter Station back-up generator emissions

- 8.9.45 Sandwich Bay to Hacklinge Marshes SSSI is approximately 20 m from the Minster Converter Station and Substation LoD. There are no human receptors within 200 m of the LoD.
- 8.9.46 The proposed back-up generators will likely require diesel fuel. There is one proposed at the Substation, and one at the Converter Station. They will be operated during routine maintenance activities in accordance with the maintenance regime proposed by NGET; this is likely to be twice a month for up to an hour each time. They may also be required during emergency scenarios; however, emergency scenarios requiring the use of back up generators are likely to be rare. The type/model of diesel generators used will be unknown until the on-site contractor is appointed; however, it is likely that the power output required would be approximately 300-500 kVA.
- 8.9.47 Previous in-house modelling of generator emissions has been undertaken. A larger generator (1000 kVA diesel generator) was assessed by calculating emission rates derived from the Stage V emissions standards to predict the highest concentrations that could result from the operation of diesel generators during construction of the Proposed Project. Concentrations, including NO_x, were predicted in ADMS-Urban (version 5.0) across a grid using emission rates and generator parameters as model inputs.
- 8.9.48 The modelling assumed continual operation and predicted the maximum annual NO_x PC would be 5 µg/m³. The maximum concentration was predicted to occur approximately 40 m from the generator stack. The model was set up based on the assumption that the generator was running on full load for the whole year.
- 8.9.49 Based on a worst case assumption that the back-up generators run for 1% of the time and emissions would be similar to the 1000 kVA generator, the maximum annual NO_x PC is likely to be in the order of 0.05 µg/m³ from each generator, and therefore will be well below 1% of the Critical Level of 30 µg/m³ for the protection of vegetation and ecosystems at nature conservation sites. Additionally, background pollutant concentrations are well below the respective air quality objectives and Critical Level for each pollutant, as presented in Table 8.13 for the operational phase.

- 8.9.50 The following measure has been included in **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)** to ensure emissions from the back-up generators during the operational phase are not significant:
- AQ11
 - Ensure the generators adhere to Stage V emissions standards and seek alternatives where possible, such as batteries or alternative fuel; and
 - Should diesel generators be used, ensure they are placed as far from Sandwich Bay to Hacklinge Marshes SSSI as possible and that testing is kept to a minimum.
- 8.9.51 Taking into consideration the proposed measure and given the worst case predicted PC would be well below 1% of the NO_x Critical Level and background concentrations are well below the respective air quality objectives and Critical Levels, the effect of back-up generator emissions associated with the operational phase is predicted to be not significant.

Decommissioning Phase

Dust

- 8.9.52 There is the potential for fugitive dust emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited, however, effects from decommissioning activities would be expected to be similar to those during the construction phase. As such, with the implementation of the relevant mitigation measures, the temporary effect of dust emissions associated with the decommissioning phase is predicted to be not significant.

Vehicle emissions

- 8.9.53 There is the potential for vehicle emissions during the decommissioning phase. Vehicle trip rates associated with the decommissioning phase are not available. However, in the event that the Proposed Project is decommissioned, there are expected to be fewer HGV, LGV and worker arrivals and departures associated with the decommissioning phase of the Kent Onshore Scheme than during the construction phase. It is therefore considered reasonable to assume that the impacts of the decommissioning phase will be the same as, or less than, the construction phase in terms of vehicle emissions. As such, it is considered that the temporary effect of vehicle emissions associated with the decommissioning phase would be negligible (not significant).

NRMM emissions

- 8.9.54 There is the potential for NRMM emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, it is considered that the temporary effect of NRMM emissions associated with the decommissioning phase would be not significant.

8.10 Additional Mitigation

- 8.10.1 No likely significant effects have been predicted, therefore additional mitigation measures are not required.

8.11 Residual Effects and Conclusions

- 8.11.1 As there are no likely significant effects identified, and no need for additional mitigation measures, the residual effects are the same as those reported in Section 8.9 above.
- 8.11.2 The construction dust risk assessment undertaken for the construction phase determined that the worst-case risk of dust effects would be high. Appropriate measures have been identified and incorporated into the outline CEMP (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**). With the implementation of these measures, the temporary effects of construction dust have been determined to be not significant.
- 8.11.3 There is also the potential for temporary fugitive dust emissions during the decommissioning phase. It is considered that the potential effects on air quality associated with the decommissioning phase would be similar to those identified during the construction phase. With the implementation of the measures identified for the construction phase, the effect of dust associated with the decommissioning phase have been determined to be not significant.
- 8.11.4 There is the potential for temporary air quality effects as a result of vehicle emissions during the construction phase. A review of the traffic data for the construction vehicle routes and haul roads indicated that the flows would be below the IAQM and EPUK Development Control screening criteria (Institute of Air Quality Management and Environmental Protection UK, 2017), other than on the A256 Richborough Way (between the Sevenscore and Ebbsfleet Roundabouts). Detailed modelling has been undertaken at worst case receptor locations within 200 m of the affected road. Changes in NO₂, PM₁₀, PM_{2.5} and NO_x concentrations at these locations are predicted to be negligible. The effect of construction vehicle emissions as a result of the Proposed Project has therefore been determined as negligible (not significant).
- 8.11.5 During the operational and maintenance phase, the Proposed Project would be staffed by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. Therefore, due to the low level of trips likely to be generated, which would be well below the IAQM indicative criteria, air quality effects associated with operational phase vehicle emissions have been determined to be not significant.
- 8.11.6 There is also the potential for temporary air quality effects as a result of vehicle emissions during the decommissioning phase. Vehicle trip rates associated with the decommissioning phase cannot be predicted at this stage. However, in the event that the Proposed Project is decommissioned, there are expected to be fewer HGV, LGV, and worker arrivals and departures associated with the decommissioning phase of the Kent Onshore Scheme than during the construction phase. The impacts of the decommissioning phase will therefore likely be the same as, or less than, the construction phase in terms of vehicle emissions. As such, it is considered that the effect of vehicle emissions associated with the decommissioning phase would be negligible (not significant).

- 8.11.7 Temporary construction compounds are required along the cable route to facilitate construction activities. There may be a requirement for generators at the construction compounds and other NRMM will be operational throughout the construction phase. Due to the temporary and transient nature of NRMM operation, low background concentrations, proximity of receptors and NRMM control measures, the use of construction NRMM is unlikely to result in significant effects on local air quality that would result in exceedances of the AQS objectives and Critical Levels at receptors within 200 m of the construction compound. As such, it is considered that the impact of temporary NRMM emissions associated with the construction phase would be not significant.
- 8.11.8 There is also the potential for NRMM emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, it is considered that the temporary effect of NRMM emissions associated with the decommissioning phase would be not significant.
- 8.11.9 During the operational phase, back-up generators would be located at the Minster Substation and Converter Station. As the back-up generators would run very infrequently, the maximum annual NO_x PC is predicted to be well below 1% of the Critical Level of 30 µg/m³. As such, and with the implementation of the additional measures outlined in the REAC (**Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**), the effect of back-up generator emissions associated with the operational phase on Sandwich Bay to Hacklinge Marshes SSSI is predicted to be not significant.

8.12 Sensitivity Testing

- 8.12.1 It is likely that under the terms of the draft DCO, construction could commence in any year up to five years from the granting of the DCO which is assumed to be 2026. Consideration has been given as to whether the effects reported would be any different if the works were to commence in any year up to year five. The air quality assessment assumes that construction will commence in the earliest year. Whilst baseline traffic flows during a later assessment year (e.g. due to a delay in the Proposed Project) would be expected to be higher, the flows associated with the Proposed Project itself would not change. Additionally, air quality is expected to improve with time as technology improves, therefore further sensitivity testing has been deemed not necessary.

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